

# High Pressure Gas Master Valves

## 9560 Series

### Application

The 9560 Series high pressure brass valves are used on cylinder filling panels, tube trailers, and other high pressure manifolds and piping systems. The 9560 Series exhibits a very low operating torque under pressure for ease of manual operation.

### Features

- 4200 psig maximum working pressure with a 5 to 1 safety factor.
- Non-rising stem design with O-Ring Seal for durable service.
- Large brass handwheel for easy low torque operation under pressure.
- All valves cleaned for use in oxygen per CGA G-4.1.
- Temperature range -40°F to +165°F.

### Materials

- Body, bonnet, stem, and seat retainer, stem seal retaining rings and washer .....Brass
- Stem O-Ring.....Viton
- Handwheel washer.....PTFE

### Soft Seat Option

The soft seat valves use a CTFE seat disc in the seat retainer to create a “bubble-tight” seal against a machined seat surface on the brass body. Valve Cv is 2.6.

The soft seat option is especially useful for small molecule gases like hydrogen and helium, but can be used for a variety of non-corrosive industrial gases including oxygen, argon, nitrogen, carbon dioxide, nitrous oxide, and acetylene.

### Metal Seat Option:

A copper seat disc is used in the seat retainer to create a seal against a Monel body seat, which is installed into the body and can be replaced. Valve Cv is 2.3.

The metal seat option minimizes the possibility of seat decomposition or ignition in oxygen service under adiabatic compression. The metal seat option is recommended for oxygen, and can also be used for other non-corrosive industrial gases. The metal seat option is not to be used for acetylene due to the copper seat. Not to be applied in hydrogen or helium service or where a “bubble-tight” seal is essential. (Note: C in part number)

### Bonnet Versions

- Standard Bonnet for low profile.
- Panel Mount Bonnet for ease of panel installation. Includes threaded bonnet and nickel plated brass mounting nut. Metal Seat Option 1.625" diameter panel hole required for mounting. (Note: P in part number)

### HP Version

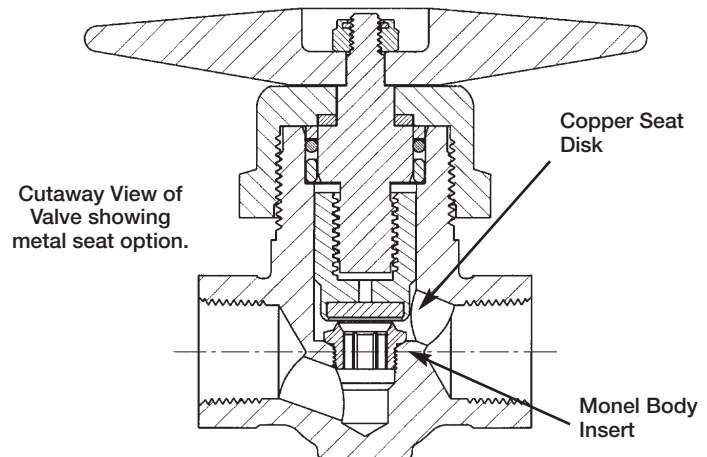
- With metal seat option.
- 5600 psig maximum working pressure with 4 to 1 safety factor. Use “HP” prefix for metal seat. (ex. HP9560CB). Nylon seat option available also (ex. 9560NB).



STANDARD BONNET VALVE

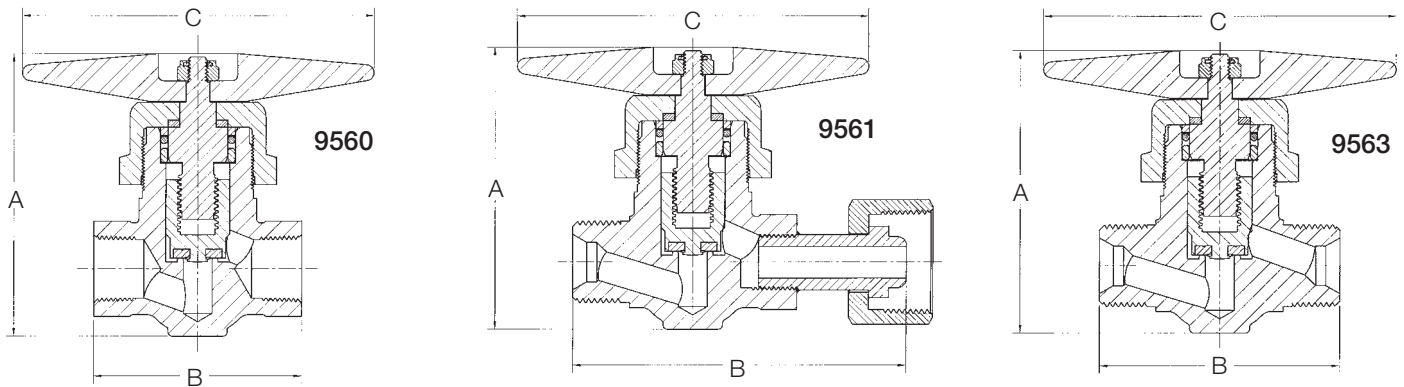


PANEL MOUNT VALVE

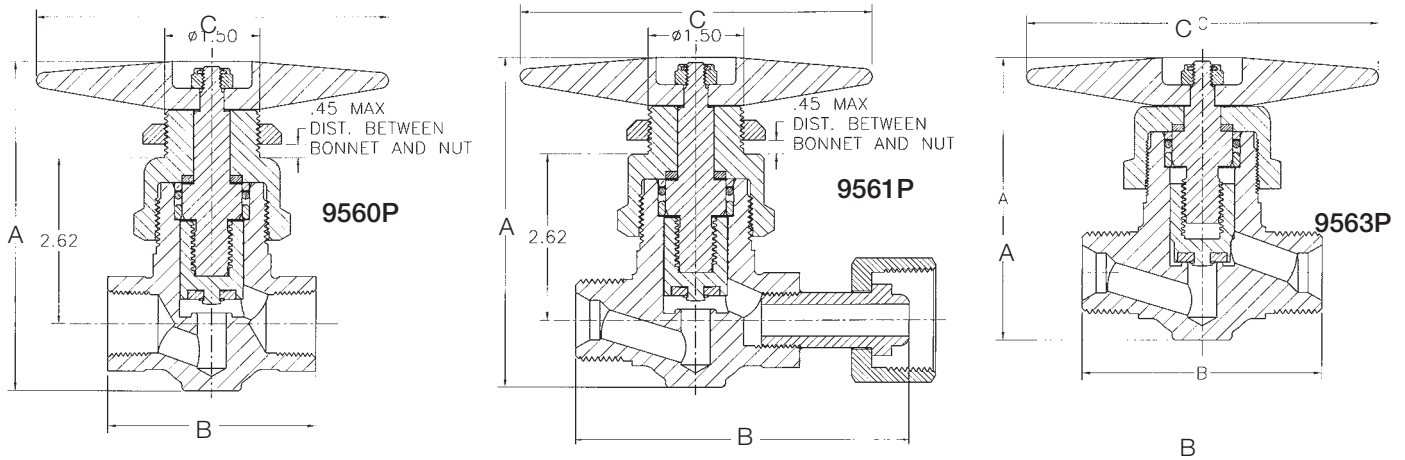


# High Pressure Gas Master Valves

## 9560 Series



STANDARD BONNET VALVE DIMENSIONS



PANEL MOUNT VALVE DIMENSIONS

### Ordering Information

Part Number		Inlet Connection	Outlet Connection	Height A	Width B	Handwheel Width C
Soft Seat	Metal Seat					
9560A	9560CA	1/2" F. NPT	1/2" F. NPT	4.36"  *[6.19" for panel mount version]	3.25"	5.5"
9560B	9560CB	3/4" F. NPT	3/4" F. NPT		5.27"	
9561R	9561CR	1"-11 1/2" NPSM R.H.	1"-11 1/2" R.H. Female Swivel		3.79"	
9561RL	9561CRL	1"-11 1/2" NPSM R.H.	1"-11 1/2" NPS L.H. Female Swivel		3.79"	
9561L	9561CL	1"-11 1/2" NPSM L.H.	1"-11 1/2" L.H. Female Swivel		3.25"	
9563R	9563CR	1"-11 1/2" NPSM R.H.	1"-11 1/2" NPSM R.H.		3.25"	
9563L	9563CL	1"-11 1/2" NPSM L.H.	1"-11 1/2" NPSM L.H.		3.25"	
9560ASE	9560CASE	.843 - .847	.843 - .847		3.25"	
9560BSE	9560CBSE	1.053 - 1.057	1.053 - 1.057		3.25"	
9560BSE-B	9560CBSE-B	1.053 - 1.057	3/4" F.NPT	3.25"		

\*Place "P" at end of part number for panel mount version.

# Diaphragm Type Globe Valves

## 2550 Series

### Application

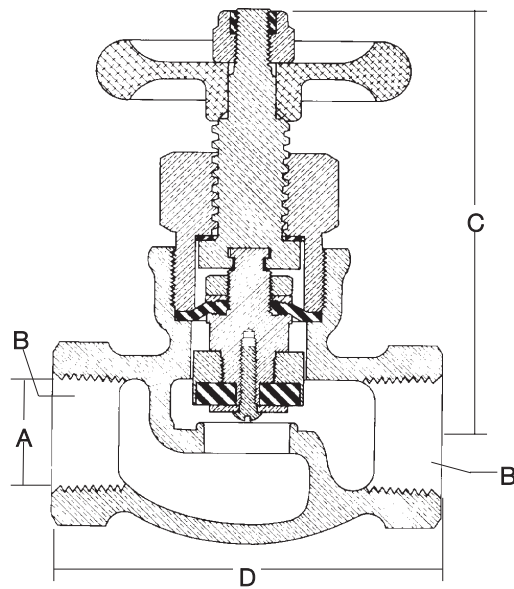
The 2550 series valves are designed for use in hospital and industrial piping systems where gases are supplied from a central source to branch outlets throughout the system.

### Features

- UL listed for use with air, acetylene, hydrogen, LP-Gas, nitrogen, and oxygen service.
- Leakage is prevented by a dependable diaphragm stem seal.
- A resilient seat disc provides positive shut-off.
- Heavy duty ACME stem threads assure easy operation and long working life.
- Maximum working pressure is 250 PSIG.
- Working temperature range is -40°F to +165°F.

### Materials

Body (2553 series) .....Forged Brass  
 (2554 series).....Cast Bronze, Tin Plated  
 Handwheel .....Aluminum  
 Seat Disc .....Filled Teflon  
 Diaphragm.....Neoprene  
 Bonnet.....Brass  
 Stem.....Manganese Bronze



### Ordering Information

Part Number	Inlet / Outlet Thread (Female NPT) A	Port Diameter B	Height C	Length D	Cv Factor
2553AC	1/4"	13/32"	3 5/8"	2 1/2"	1.4
2553AAC	3/8"				1.5
2554AC	1/2"	1 1/16"		3 3/8"	4.3
2554AAC	3/4"				4.3

# Diaphragm Type Globe Valves

## 2500 Series

### Application

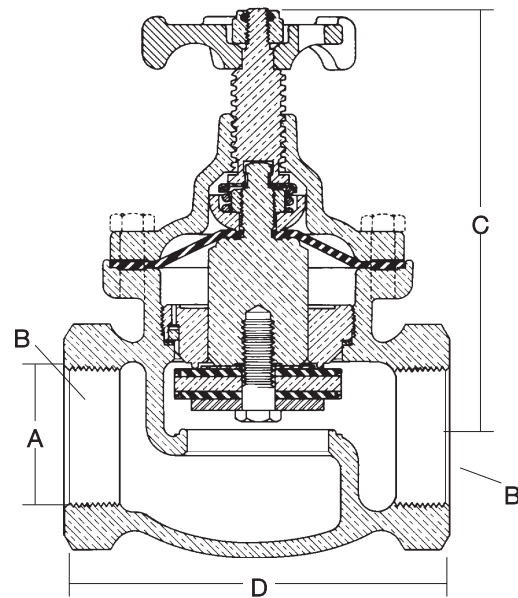
The 2500 series valves are designed for use in hospital and industrial piping systems where gases are supplied from a central source to branch outlets throughout the system.

### Features

- UL listed for use with air, argon, acetylene, helium, hydrogen, LP-Gas, nitrogen, inert gases and oxygen service.
- Leakage is prevented by a dependable diaphragm stem seal.
- A resilient seat disc provides positive shut-off.
- Heavy duty ACME stem threads assure easy operation and long working life.
- Unique back seat design allows the diaphragm assembly to be repaired while the valve remains in service.
- Maximum working pressure is 400 PSIG.
- Working temperature range is -40°F to +165°F.

### Materials

Body .....Cast Bronze, Tin Plated  
 Bonnet .....Brass  
 Stem .....Manganese Bronze  
 Seat Disc .....Neoprene  
 Diaphragm .....Neoprene

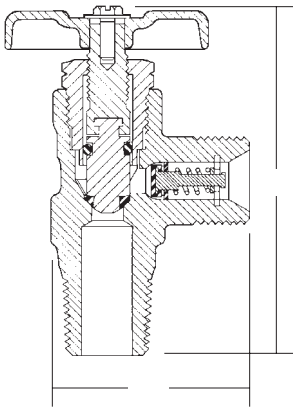


### Ordering Information

Part Number	Inlet / Outlet Thread (Female NPT) A	Port Diameter B	Height C	Length D	Cv Factor
2505AC	3/4"	15/16"	5 1/4"	4"	9.0
2507AC	1"	1 1/8"	5 3/8"	4 3/8"	15.0
2511AC	1 1/2"	1 11/16"	6 3/4"	5 3/8"	33.4
2513AC	2"	2 1/16"	7 1/4"	6 1/4"	51.7

# Line Station Valves

## 7160 Series



### Application

The 7160 series valves are designed for use with oxygen and all fuel gases at station outlets of line distribution systems such as welder's benches, cutting stations, hospital rooms, etc.

### Features

- UL listed. Approved for oxygen and all fuel gas services at 400 PSIG maximum working pressure.
- O-ring stem seal works with the pressure causing a tighter seal as pressure increases.
- A reverse flow check valve installed in the valve outlet connection helps prevent reverse flow.
- Available with brass cap and chain protection.
- Meets the requirements of National Fire Protection Association (NFPA) Pamphlet No. 51.

### Materials

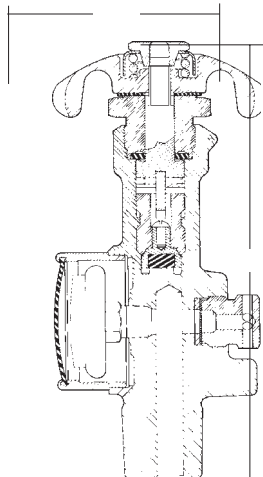
Body .....Brass  
 Stem and Seat Retainer .....Brass  
 O-ring .....Neoprene  
 Seat Disc .....Nylon  
 Reverse Flow Check Seat .....Neoprene

### Ordering Information

Part Number	Gas Service	Inlet Thread	Outlet Thread	CGA Connection	Cv Factor	Outlet Protection*
7160V	Oxygen and Inert Gases	1/2" NGT	7/8"-14 M. R.H.	024	.76	10663 Brass Cap & Chain
7160VL						None
7161V	Fuel Gases	1/2" NGT	7/8"-14 M. L.H.	025	.76	10664 Brass Cap & Chain
7161VL						None

# Nitrogen Cylinder Valves

## CW6900 Series



### Application

The CW6900 series valves incorporate a built-in gauge that tells the user at a glance how much pressure is in the cylinder. This is especially important in the fire protection industry.

### Features

- 0 to 3000 PSIG gauge built into the valve.
- Chrome whitened finish.
- Non-rising stem design provides easy operation and positive shut-off.
- UL listed.

### Materials

Body.....Brass, Chrome Whitened  
 Bonnet.....Brass, Chrome Whitened  
 Seat Disc .....Nylon  
 Stem .....Brass, Chrome Plated  
 Stem Packing.....PTFE

### Ordering Information

Part Number	Gas Service	Inlet Thread (NGT)	Outlet Thread	CGA Connection	Relief Pressure (PSI)
CW6900G580	Nitrogen	3/4"	.965-14 R.H.	580	3360

# Pressure Gauges



Pressure gauges are available in a variety of popular pressure ranges for gas plant applications.

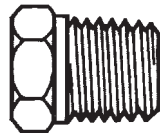
Gauges should be selected so that the maximum working pressure of the particular system represents 66% to 75% of the maximum gauge reading. Greater safety and accuracy may be realized by following these guidelines.

## Ordering Information

Part Number	Maximum Calibration (PSIG)	Size	Increment Division (PSIG)	Case Material
1286	100	2"	2	Steel
2523HP-7	160		5	
S1679	200		10	Brass
15578	400		50	Steel
5562C	4000			

# Brass Plugs

(for pressures to 3000 PSIG)  
Safety factor = 5:1

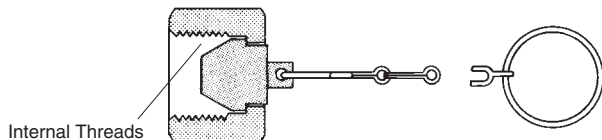


Typical Plug

## Ordering Information

Part Number	Thread Connection	Hex Flats
985B	1/4" NPT	3/16"
985D	1/2" NPT	7/8"
985E	3/4" NPT	1 1/8"
985F	1" NPT	1 3/8"

# Brass Outlet Cap and Chain Assemblies



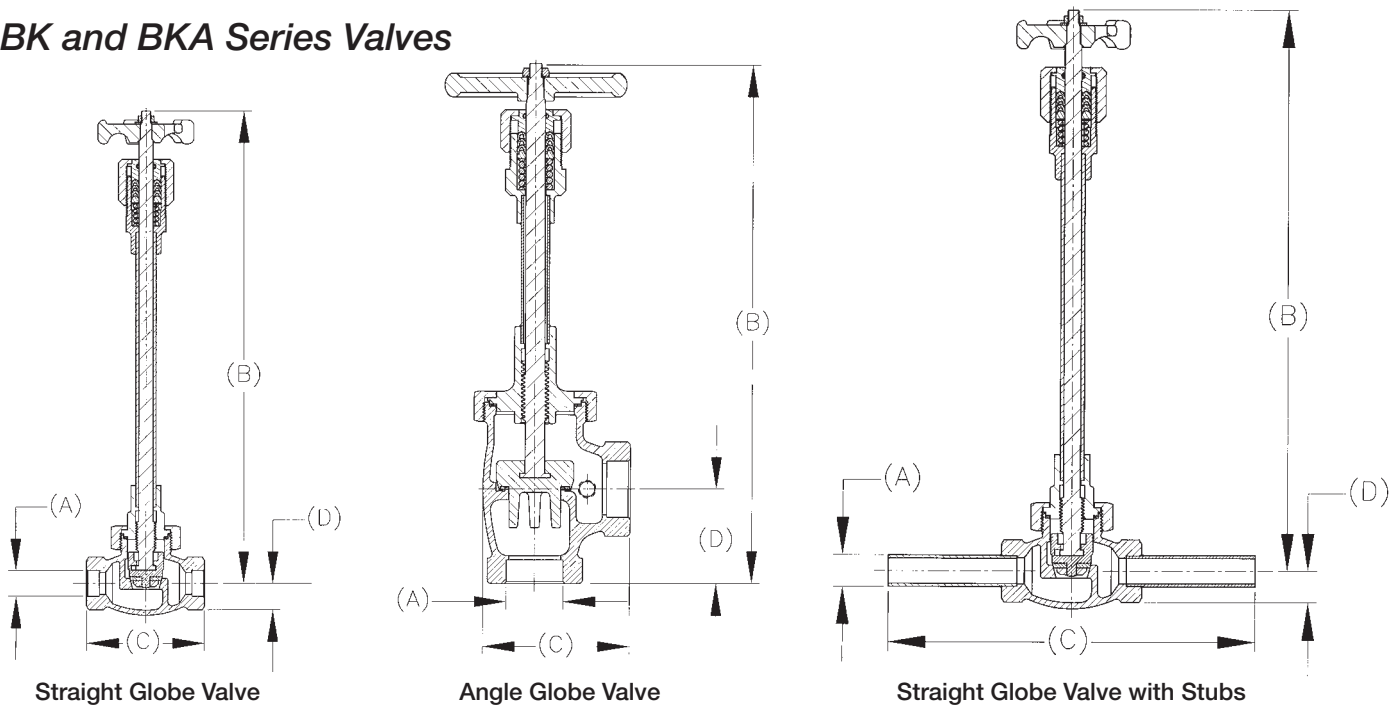
Cap with Plug

## Ordering Information

Part Number	Thread Connection	End Ring Fits Pipe
10663	7/8"-14NF-RH	1/2"
10664	7/8"-14NF-LH	1/2"

# Extended Bonnet Cryogenic Globe Valves

## BK and BKA Series Valves



### Ordering Information and Dimensions

Part Number	Body Style	Inlet / Outlet Connections A	Height Open B (Approx.)	Length C	D	Cv Factor
BK8404S	Straight	.631"-.634"	9 <sup>5</sup> / <sub>32</sub> "	3 <sup>1</sup> / <sub>16</sub> "	1"	4.7
BK8404T		1/2" F.NPT				
BK8404ST		.631"-.634"x 1/2" F.NPT	14 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>16</sub> "	1"	4.7
BK9404S		.631"-.634"				
BK9404T		1/2" F.NPT				
BK9404AA		1/2" Sch5 Pipe	14 <sup>1</sup> / <sub>2</sub> "	9 <sup>1</sup> / <sub>16</sub> "	1"	4.7
BK9404PT-F30		1/2" Sch5 Pipe x 1/2" F.NPT				
BK9404ST		.631"-.634"x1/2" F.NPT	9 <sup>5</sup> / <sub>32</sub> "	3 <sup>1</sup> / <sub>16</sub> "	1"	6.7
BK8406S		.881"-.884"				
BK8406T		3/4" F.NPT	14 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>16</sub> "	1"	6.7
BK9406S		.881"-.884"				
BK9406T		3/4" F.NPT	9 <sup>1</sup> / <sub>8</sub> "	4 <sup>5</sup> / <sub>16</sub> "	1 <sup>1</sup> / <sub>8</sub> "	11.2
BK8408S		1.131"-1.134"				
BK8408T		1" F.NPT	14 <sup>1</sup> / <sub>2</sub> "	4 <sup>5</sup> / <sub>16</sub> "	1 <sup>1</sup> / <sub>8</sub> "	11.2
BK9408S		1.131"-1.134"				
BK9408T		1" F.NPT	16 <sup>7</sup> / <sub>16</sub> "	5 <sup>3</sup> / <sub>16</sub> "	1 <sup>1</sup> / <sub>2</sub> "	25.1
BK9408AA		1" Sch5 Pipe				
BK9408PT-F30		1" Sch5 Pipe x 1" F.NPT	16 <sup>7</sup> / <sub>16</sub> "	11 <sup>3</sup> / <sub>16</sub> "	1 <sup>1</sup> / <sub>2</sub> "	25.1
BK9410S*		1.378"-1.380"				
BK9412S*		1.631"-1.634"	16 <sup>7</sup> / <sub>16</sub> "	8 <sup>3</sup> / <sub>16</sub> "	1 <sup>1</sup> / <sub>2</sub> "	25.1
BK9412T*	1 1/2" F.NPT					
BK9412AA	1 1/2" Sch5 Pipe	16"	6"	1 5/8"	41	
BK9412PT-F30	1 1/2" Sch5 Pipe x 1 1/2" F.NPT					
BK9416S*	2.131" - 2.134"	16"	9"	1 5/8"	41	
BK9416T*	2" F.NPT					
BK9416PT-F30	2" Sch5 Pipe x 2" F.NPT	11 1/4"	3 1/4"	1 3/4"	14.5	
BKA8408S	1.131" - 1.134" x 1.631" - 1.634"					
BKA9408S	Angle	1.631"-1.634"	13"	4 1/4"	30.0	
BKA8412S		1.631"-1.634"				

\* Valves with bolted bonnet design.

# RegO Cryogenic Fill Manifold CFM Series

## Application

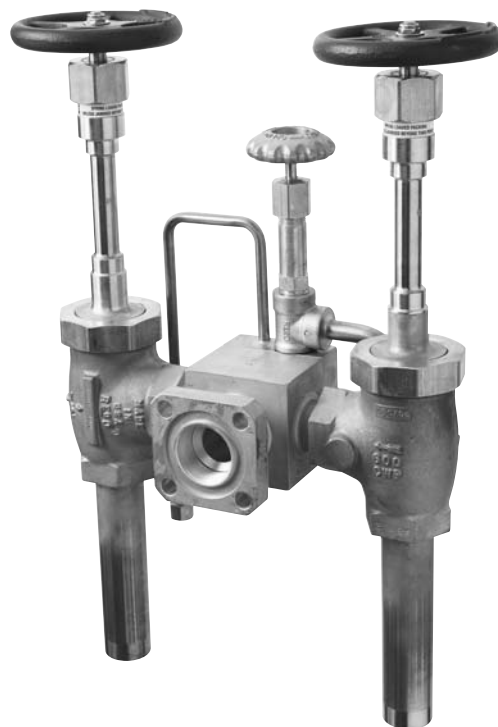
Direct replacement for cryogenic fill modules in bulk vessel applications. Our factory-brazed assembly includes top and bottom fill valves, fill check and hose evacuation valve.

## Features

- Precision silver brazed assembly
- Repeatable performance and geometry
- 100% factory tested
- Temperature range -320° to +165° F

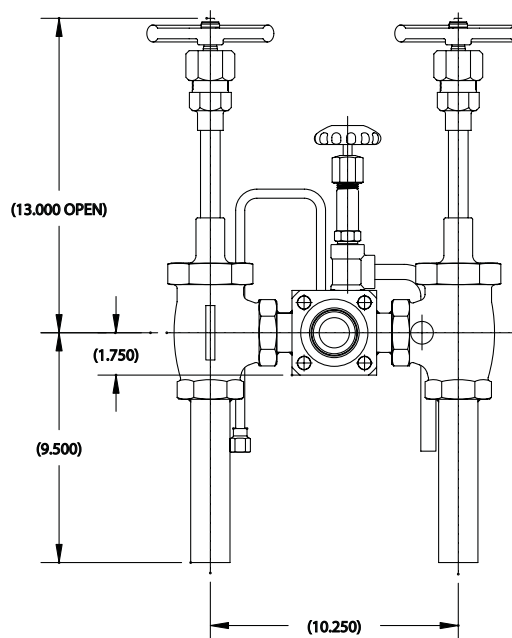
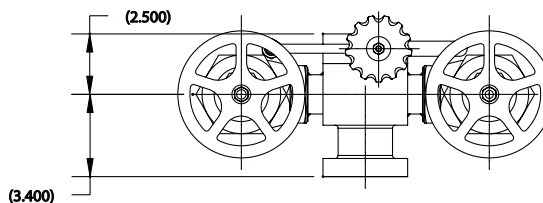
## Materials

- Body .....Bronze
- Bonnet .....Brass
- Seat Disk .....CTFE
- Seat Retainer Assembly.....Brass
- Stem and Bonnet Extension Tube.....Stainless Steel
- Packing Spring, Washer.....Stainless Steel
- Jam Ring and Pressure Seal Rings .....PTFE
- Upper Bonnet and Packing Gland .....Brass
- Handwheel .....Coated Malleable Iron
- Tube.....304L Stainless Steel Tube



## Size and Style

Model	Piping Size
CFM000002D	1"
CFM000004D	1½"



# Extended Stem Cryogenic Valves

## ES8450 Series Extended Stem Valves BK9450 & BK9470 Series Extended Bonnet Valves

### Application

These valves are designed for use as a trycock valve or hose drain valve on cryogenic tanks. Another application is as a use, liquid fill, or vent valve on mini-bulk cryogenic tanks. These valves can be used likewise for other cold gas applications requiring extended stem valves.

### Features

- Union bonnet.
- One piece stainless steel stem
- Conical seat design.
- Maximum working pressure is 600 psig.
- Working temperature is -320F to +165F.
- Cleaned for oxygen service per CGA G-4.1.

### ES8450 Series specific feature:

- Manual torque compression packing.

### BK9450 and BK9470 Series specific feature:

- Extended bonnet and spring loaded packing.

### BK9470 Series specific feature:

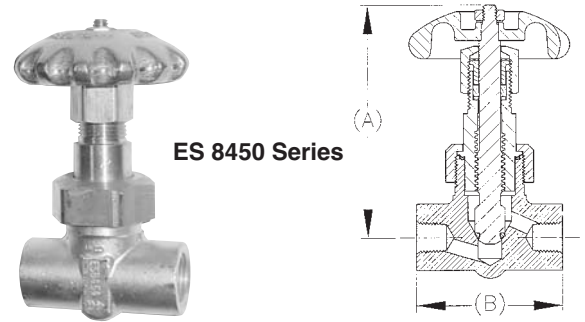
- 304 St. Stl Tube brazed into one or both ends.

### Materials

Body and Bonnet .....Brass  
Stem .....Stainless Steel  
Seat disc .....CTFE  
Handwheel .....Aluminum  
Packing and Bonnet Gasket .....PTFE

### Conversion Kit

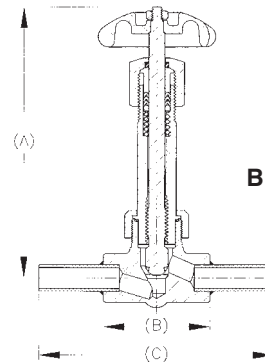
BK 9450-KIT is a bonnet and stem assembly kit to convert ES 8450 Series and previous ES 9450 Series to the BK 9450 style.



ES 8450 Series



BK 9450 Series



BK 9470 Series

### Ordering Information

Part Number	Inlet/Outlet Connections	Height "A"	Body Width "B"	Width with Tube "C"	C <sub>v</sub>	
ES 8452	1/4" FNPT	4"	2.5"		0.70	
ES 8453	3/8" FNPT	4"			1.10	
ES 8454	1/2" FNPT	4"			1.10	
BK 9452	1/4" FNPT	6.5"			0.70	
BK 9453	3/8" FNPT	6.5"			1.10	
BK 9454	1/2" FNPT	6.5"			1.10	
BK 9453FA	5/8" OD tubing x 3/8" FNPT	6.5"			4.0"	1.10
BK 9475A	5/8" OD tubing both ends	6.5"			5.5"	1.10

# Needle Valves

## CMM250 Series and CFF250 Series

### Application

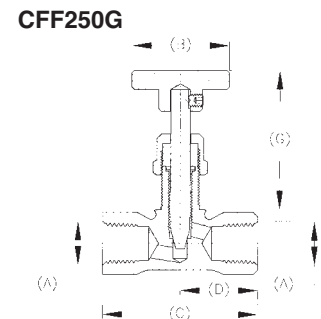
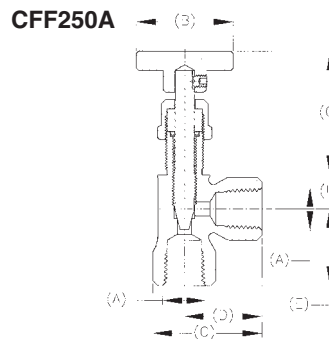
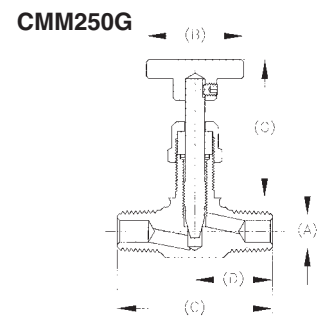
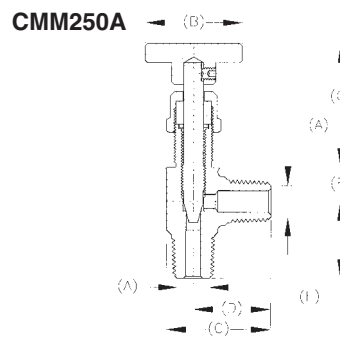
Ideal for use as a gauge isolation valve or applications requiring accurate throttling of pressure.

### Features

- Compact design provides easy installation.
- Fine stem threading and long taper allow precise metering and leak-free shut-off.
- Internal stop prevents the stem from being accidentally unscrewed from the body.
- Rugged forged brass bodies withstand higher pressures.
- Unbreakable brass handwheel.
- Valves come equipped for panel mounting.
- Working temperature range is -40°F to +165°F.
- Maximum operating pressure: 2000 psig air.
- Cleaned for oxygen service per CGA G-4.1.
- Female ports available - consult factory.

### Materials

Body .....	ASTM B283 Brass
Stem .....	Brass
Knob .....	Brass
Bonnet Nut .....	Brass
Panel Mount Nut (Optional) .....	Brass
Set Screw .....	Steel
Stem Packing .....	PTFE with Brass Gland



Part Number	A (NPT)	B (In.)	C (In.)	D (In.)	E (In.)	F (In.)	G (In.) Open	G (In.) Closed	C <sub>v</sub>
CMM250A	1/4	1 1/4	1 11/32	1	1	7/16	2 5/32	1 19/32	.7
CMM250G	1/4	1 1/4	2	7/8		7/16	2 5/32	1 19/32	.5
CFF250A	1/4	1 1/4	1 13/32	3/4	1	7/16	2 3/16	1 5/8	.7
CFF250G	1/4	1 1/4	2	1		7/16	2 3/8	1 13/16	.5

# Horizontal Check Valves

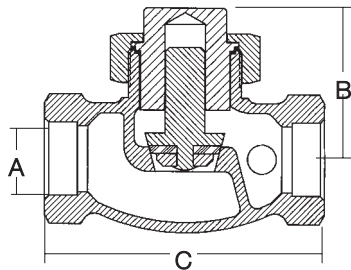
## 8500 Series



**BK8508S**



**BK8512S**



### Application

The 8500 series valves are designed for use as a check valve on large cryogenic bulk stations and cryogenic pipelines.

### Features

- Replaceable Kel-F seat discs.
- Self-centering cap holds plunger in position.
- Each valve is cleaned and packaged for liquid oxygen service per CGA G-4.1.
- Working temperature range is -320°F to +165°F.
- Maximum working pressure is 600 PSIG CWP.
- 2 PSI crack pressure.

### Materials

Body .....Bronze  
 Cap.....Brass or Bronze  
 Plunger .....Brass  
 Seat .....CTFE

### Ordering Information

Part Number	Inlet / Outlet Connection A	B	Length C	Cv Factor
BK8508S	1.128"-1.130"	2¼"	4⅝"	10
BK8508T	1" F.NPT			
BK8512S	1.629"-1.631"	3¼"	5⅝"	27
BK8512T	1½" F.NPT			

# Inline Check Valves

## CG Series Gas and Cryogenic Check Valves

### Application

Inline check valves with metal seat option for cryogenic service or with soft seat option for leak free operation in gas service.

### Features

- One directional flow indicated by arrow on body.
- Large Cv for high flow capability and low pressure drop.
- Working temperature range:
  - 320° F to +165° F for metal seats.
  - 20° F to +165° F for soft seats.
- 1 psig cracking pressure.
- Cleaned for use in oxygen service per CGA G-4.1

### Materials

Body (B and BL suffix).....ASTM B16 Brass  
 (SS and SSL suffix).....203 Stainless Steel  
 Spring .....Stainless Steel  
 Piston.....Stainless Steel  
 O-Ring (soft seat option units only).....Viton

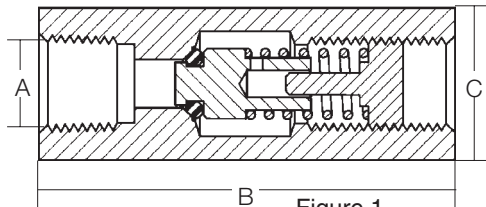
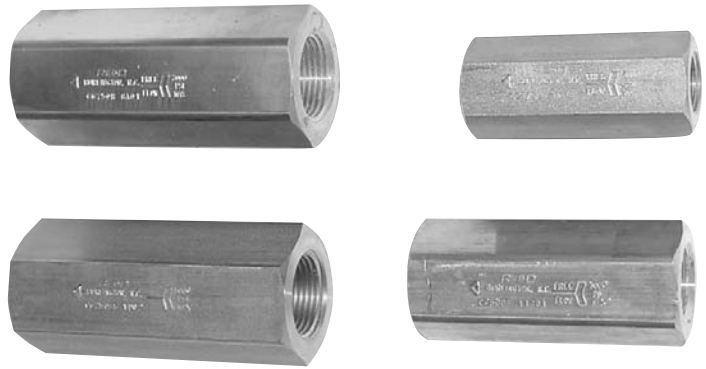


Figure 1  
Soft Seat Option

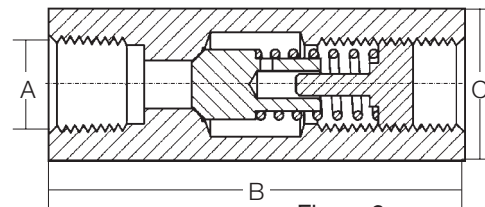
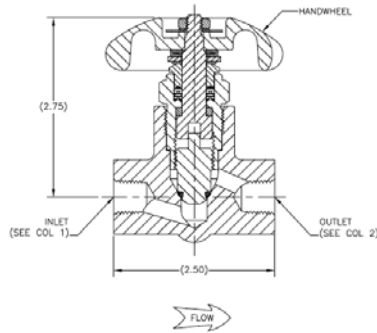


Figure 2

Part Number	Seating Option	Inlet/Outlet Connections FNPT P	Length L	Wrenching Hex Size D	Cv	Maximum Operating Pressure
<b>Stainless Steel Check Valves</b>						
CG250SS	METAL	1/4"	2 3/8"	13/16"	.87	5000 PSIG
CG375SS	METAL	3/8"	2 1/2"	1"	2.3	5000 PSIG
CG500SS	METAL	1/2"	3"	1 1/8"	3.5	5000 PSIG
CG750SS	METAL	3/4"	3 5/8"	1 1/2"	5.2	5000 PSIG
CG250SSL	SOFT	1/4"	2 3/8"	13/16"	.87	250 PSIG
CG375SSL	SOFT	3/8"	2 1/2"	1"	2.3	250 PSIG
CG500SSL	SOFT	1/2"	3"	1 1/8"	3.5	3000 PSIG
CG750SSL	SOFT	3/4"	3 5/8"	1 1/2"	5.2	3000 PSIG
<b>Brass Body Check Valves</b>						
CG250B	METAL	1/4"	2 3/8"	13/16"	.87	3000 PSIG
CG375B	METAL	3/8"	2 1/2"	1"	2.3	3000 PSIG
CG500B	METAL	1/2"	3"	1 1/8"	3.5	3000 PSIG
CG750B	METAL	3/4"	3 5/8"	1 1/2"	5.2	3000 PSIG
CG250BL	SOFT	1/4"	2 3/8"	13/16"	.87	250 PSIG
CG375BL	SOFT	3/8"	2 1/2"	1"	2.3	250 PSIG
CG500BL	SOFT	1/2"	3"	1 1/8"	3.5	3000 PSIG
CG750BL	SOFT	3/4"	3 5/8"	1 1/2"	5.2	3000 PSIG

# Short Stem Cryogenic Valves

## T9450 Series T9460 Series



### Ordering Information

Part Number	Inlet	Outlet	Orifice A	Length B	Height (Approx.) C	Tube D	Cv Factor
T9452	1/4" F.NPT	1/4" F.NPT	.250	2 1/2"	2 3/4"	None	.72
T9453	3/8" F.NPT	3/8" F.NPT	.406				1.08
T9454	1/2" F.NPT	1/2" F.NPT	.406				1.10
T9464CA	.675 Tube	3/8" F.NPT	.406	2 1/2"	2 3/4"	1 1/8"	1.08
T9464DA						2 1/8"	
T9464ADA						3 3/8"	

### Application

The T9450 and T9460 series valves are designed for use on portable cryogenic cylinders and other in-line shut-off valve applications. Approved for TPED in accordance with EN1626.

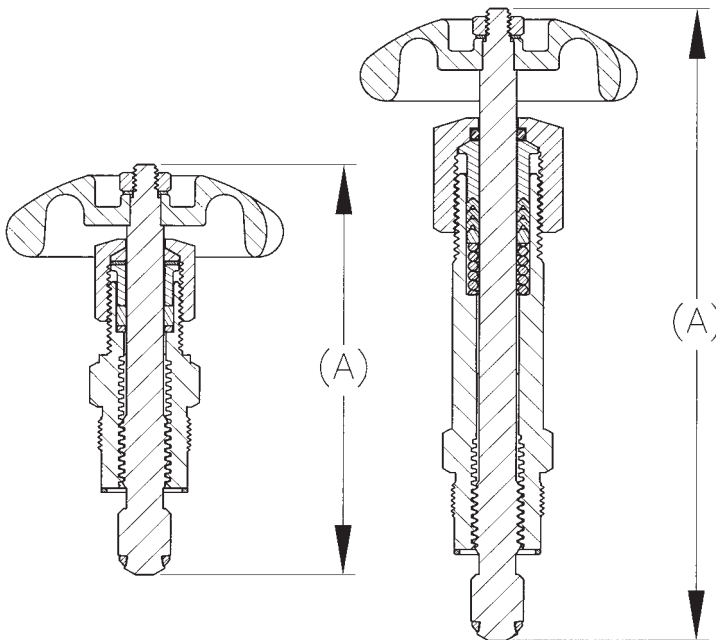
### Features

- Spring loaded stem seal automatically adjusts for any gasket wear, eliminating the need to constantly retighten the packing nut.
- Non-rising stem and low profile allow the valve to fit into tight areas and still provide easy access.
- Unique pressure-sealed moisture barrier helps prevent freeze up at cryogenic temperatures.
- Conical swivel seal design helps prevent seat galling from over torquing.
- Cleaned for liquid oxygen service per CGA G-4.1.
- Maximum working pressure is 600 PSIG.
- Working temperature range is -320°F to +165°F.

### Materials

Body.....	Brass
Bonnet.....	Brass
Seat Disc.....	CTFE
Stem Seal Gasket.....	PTFE
Handwheel.....	Aluminum
Spring.....	Stainless Steel
Upper Stem.....	Brass
Lower Stem.....	Manganese Bronze

# Extended Stem Retrofit Kits



### Application

These retrofit kits can be used to convert the 9450 and 9460 series short stem shut off valves into extended stem style. The conversion can be done without removing the valve from your system. Available in two stem lengths. All kits are oxygen cleaned and packaged per CGA G-4.1.

### Materials

Bonnet.....	Brass
Seat Disc.....	CTFE
Handwheel.....	Aluminum
Packing.....	PTFE
Stem.....	Stainless Steel
Stem Seal Gasket.....	PTFE

### Ordering Information

Part Number	Stem Length A	Style
ES8450R	4"	Extended Stem, Std. Bonnet, Manual Packing
BK9450R	6.5"	Extended Bonnet and Stem, Spring Loaded Packing